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AUTHOR Stinson, E. Ray; Mueller, Dorothy A.
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ABSTRACT

The first of three phases of a project to develop a Comprehensive Integrated Cancer Information System (CICIS) consisted of a survey which was conducted through personal interviews with 402 Alabama health professionals to determine their sources of health information. Type of practice, location of practice, age, size of hospital, and specialty seem to influence source, as well as environment--here defined as rural, semi-urban, or urban. The findings show that medical literature is the most common source, both solicited and unsolicited. Other sources include talks with colleagues, local meetings, state meetings, national meetings, and continuing education courses. (JVP)

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D. Name of Authors

Stinson, E. Ray; B.S., M.S.

Mueller, Dorothy A.; A.B., M.A.

E. Name of Department and Institution

Departments: 1) Lister Hill Library of the Health Sciences

2) Comprehensive Cancer Center

Institutions: The Medical Center

The University of Alabama in Birmingham

F. Name and Address to Contact for Reprints

Dorothy A. Mueller

Assistant to the Vice President

Office of the Vice President for Research and Graduate Studies

University of Alabama in Birmingham

University Station

Birmingham, Alabama 35294

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ABSTRACT

To develop a Comprehenisve Integrated Cancer Information System (CICIS), the Cancer Information Specialist(CIS) conducted personal interviews with 402 randomly selected Alabama health professionals. The interviews with rural, semi-urban, and urban health professionals identified the information habits that health professionals used to stay abreast of current advances in medicine as well as their information needs that could be developed in the future. They also showed that the use of various sources was dependent on his (her) type of practice, where they practiced, professional age, the size of hospital they were associated with, speciality, their use of other sources, etc.

Medical literature was the most common source in obtaining medical information. Unsolicited medical literature was used extensively, particularly by those in rural, solo practice. For the average responder, they spent 1-5 hours per week talking with professional colleagues about current medical problems. Although health professionals in general or family practice in rural, solo practice used pharmaceutical representatives more than those in other settings, there seemed to be a decrease in using pharmaceutical representatives for drug related information over the last 10-15 years. In attending professional meetings and CE courses, the typical responder cited he(she) spent 5-10 hours per year at local meetings, 5-10 hours per year at state meetings, 10-15 hours per year at national meetings, and 10-15 hours per year at educational courses sponsored by various medical schools.

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Introduction

Through a contract with the National Cancer Institute (NCI) the Lister Hill Library of the Health Sciences at the University of Alabama in Birmingham (UAB) developed a Comprehensive Integrated Cancer Information System (CICIS). The objective was to be accomplished in three phases: 1) identify the cancer information needs of Alabama health professionals; 2) based on those needs, develop service components; and 3) implement those services throughout the state of Alabama. This article describes the methodology employed in phase one and the findings from the survey that were used to identify the cancer information needs of health professionals in Alabama.

Survey Methodology and Characteristics of Population Sample

In order to survey Alabama's health professionals, the Lister Hill Library developed a "Questionnaire to Determine the Health Professionals' Cancer Information Needs". In an extensive literature search, two published reports were used as guides in developing the questionnaire.^{1,2} Dr. David C. Hurst, chairman of the UAB Biostatistics Department, assisted both in designing the questionnaire and in establishing the appropriate number of respondents to constitute a random sample.

The Questionnaire was administered by the interview technique to 402 randomly selected Alabama health professionals. Figures 1 and 2 show the breakdown by geographic region of the total population of Alabama health professionals (Figure 1) and of the responders to the Questionnaire (Figure 2). Figures 3 and 4 show the rural-urban distribution of the total health professional population of Alabama

(Figure 3) and of the responders to the Questionnaire (Figure 4).

A pretest of the first 35 people allowed for arranging adequate intervals and for establishing code responses.

Figure 5 lists the groups of health professionals interviewed, the total number of each group in the state, the total number of each group interviewed, and the percent of each group interviewed. For the purpose of this survey, health professionals included the groups listed in Figure 5.

In developing a random list for each group, health professionals who lived in the state, were licensed to practice, and were included in professional directories were numbered. The numbers were put in random order. To obtain 402 interviews, we attempted to contact 621 individuals. Figure 6 shows the reasons why 75 people refused and why 144 people were rejected. The rejected health professionals were removed from the sample and were not included in any statistical interpretation. Since state directories did not distinguish between retired and active health professionals, 25 health professionals who were retired for many years refused. Recently retired individuals willing to participate in the survey were included since the experience could offer significant insight into information delivery. With the possible exception of those people replacing transferred military professionals, the health professionals replacing the "rejected" and "refused" individuals did not exclude any particular health care group.

Every effort to obtain an appointment with people selected was made, including return trips to areas where health professionals could not be interviewed during the original time period. Interviews were begun on June 22, 1976 and completed April 26, 1977.

A three week cycle was used in obtaining appointments for the Cancer Information Specialist(CIS) to interview the health professional. During the first week, a letter was sent to a prospective participant. It introduced the project and the CIS and requested the voluntary participation of that health professional. The letter was signed by Dr. John Durant, Director of the UAB Comprehensive Cancer Center, and also included a copy of a letter from the respective state professional association approving the overall project and questionnaire. During the second week the Project's secretary telephoned the health professional to set up a specific time for the CIS to conduct the interview during the third week. The CIS interviewed 12-15 people during a typical week.

Figure 7 is a breakdown of those interviewed by their type of health care practice. Health care institutions include 1) hospitals, 2) medical schools, 3) nursing homes, and 4) the Public Health Department. The "Other" category includes health professionals working in public schools for the handicapped, retention centers, and people unemployed or retired.

Figure 8 is a breakdown by speciality of the physicians included in the survey. "Other" includes specialists in Neurology, Occupational

Medicine, Ophthalmology, Psychiatry, Public Health, Urology, Physical Medicine, Industrial, and Emergency Medicine.

For all physicians, a professional age was assigned by subtracting the year they graduated from medical school from 1977. Figure 9 shows the professional age of responders broken into 10 year intervals and expressed in percents.

Findings

In analyzing the results, crossmatching was used to determine significant subgroups within the whole. A crossmatching is a breakdown of one variable (question) by another variable-- professional age, geographic area, hospital size, etc. The purpose of studying crossmatching is to locate a variable that is lower or higher than the expected and to determine if this change is due to your responders. This can be determined if the is significant at a particular probability level. The smaller the probability level, the more emphatically the results can be stated.

Figure 10 is the result of asking the health professional to indicate his(her) use of various sources.

Although originally slanted toward cancer information, a general question was asked after the pretest because health professionals could not distinguish between cancer information and other health information.

As can be seen form figure 10, medical literature is the most common source in obtaining new information(mean=2.5). When the physicians' response was crossmatched with journal subscription, physicians used

medical literature more if they subscribed to more than the average number of journals ($P=0.0057$).

Professional colleagues were the second most often source in obtaining new information. In their respective crossmatching 'urban' health professionals used colleagues more than 'rural' and 'semi-urban' ones ($P=0.0043$) and 'institutional' health professionals used colleagues more than those in 'solo' and 'group' practice ($P=0.0215$). It was also interesting to note that as one became older, his or her use of professional colleagues to obtain new information decreased ($P=0.05$).

Information obtained from association meetings was the third most common source (mean=1.9). In a crossmatch between health professionals' response and their type of community, those in 'semi-urban' communities had a significant increase over those in 'rural' and 'urban' communities ($P=0.0142$). In explaining why 'urban' health professionals responded below the average, it must be remembered that the question was directed toward obtaining information from professional meetings and not whether they attended them. Second, $\frac{1}{4}$ of all urban health professionals were associated full time with the UAB Medical Center and many others had clinical appointments or were full time at affiliated institutions. Additionally some were associated with the medical school at the University of South Alabama. These individuals often attended professional meetings for contacting fellow members of their 'invisible college'. These are also individuals who go to present papers and

and not to obtain information. This was verified by the fact that in the crossmatching between types of practice and use of associational meetings, those in 'insitutional' settings responded much more than expected to "never" while those in 'group' practice had an unusual increase in responding "often" ($P=0.0249$). 'Rural' physicians responded more than the average to "seldom" and often cited that since they were in 'solo' practice, it was hard for them to arrange to take off. This did not seem to be as much a problem to health professionals in 'semi-urban' and 'urban' counties who were in 'solo' practice. Several physicians responded that most meetings were too research-oriented and often were not aimed at the information needs of the clinical physician.

As can be seen from Figure 10, continuing education (CE) courses had a mean of 1.2 and was the fourth most common source for obtaining information. By crossmatching users' responses to CE courses by geographical region, it was found that those regions that had employed health professionals (generally MD) to develop, schedule, and advertise CE courses, the region's health professionals responded more than the average to 'often' ($P=0.0183$).

The use of pharmaceutical representatives indicated a mean use of 1.0. In their crossmatching 'urban' physicians used this source less than 'rural' ones ($P=0.0177$) and health professionals in 'solo' practice responded more than those in 'insitutional' practice ($P=0.001$). Physicians with more professional experience used pharmaceutical representatives

more than younger ones($P=0.0001$). Those in general or family practice responded more to 'regular' than those in other specialities($P=0.0001$). The use of pharmaceutical representatives decreased as the size of the primary institution increased ($P=0.0052$). Several older physicians stated that the use of pharmaceutical representatives has declined in the last several years. When those physicians began their practice, the representatives were generally people trained in the sciences (particularly chemistry). The physicians had more confidence in their ability to answer drug related questions than they did in the current drug salesmen who are often trained in business and selling techniques. After this observation was expressed to the CIS by several physicians, the CIS queried other health professionals about the change. Responses were generally similar to those expressed but statistical analysis could not be done because too few participants were queried on this change.

From Figure 10 one can show that health professionals seldom use the American Cancer Society or patients as sources of information. There were occasions when a patient would present a doctor with a newspaper or magazine(National Enquirer etc.) article describing the results of a particular research project. Only occasionally would a physician use this as an alerting service to where research was being conducted. Medical tapes, which were included in the 'other' category, represented most of the responses in that area.

Medical literature, professional colleagues, and associational

meetings were used regularly by health professionals as information sources. Continuing education courses and pharmaceutical representatives were used only seldom while patients and the American Cancer Society were almost never used.

Figure 11 shows the response to the question "How many journals do you subscribe to?" Journal subscription included only those that the health professionals personally subscribed to or received as part of a membership. As can be seen 46% of those interviewed subscribed to 2-4 journals. In crossmatching between journal subscription and type of practice, health professionals in 'group' practice typically responded that they subscribed to more than those in 'solo' practice($P=0.0001$). Health professionals in 'institutional' settings had an increase over the average in subscribing to 1 or 2 journals, decrease in those subscribing to 3-6, and another increase for those subscribing for 7-9 or more journals. For those institutional health professionals who were not literature-oriented, the local medical library could provide necessary journals. Those who had very specialized information needs subscribed to more journals than the average health professional so as to be certain that they had immediate access to articles published in their area of interest. In their respective crossmatching physicians with less than 10 years professional experience subscribed to fewer journals than the average($P=0.0002$)

and health professionals associated with larger primary health institutions used medical literature more than those from the smaller institutions($P=0.0242$).

Figure 12 shows the amount of time that health professionals spend in conferring with other professional colleagues. This time was defined as formal time designated for patient discussion as well as informal time(e.g. discussions in the hospital halls, chart dictating room, nursing stations, etc.).

The mean response for all health professionals indicated that the average health professional spent between 1 and 5 hours per week in conference with other colleagues. Physicians typically use this source more than other health professions.

In an attempt to determine the source of medical literature, the health professional was asked to indicate his use of various sources (Figure 13). As would be expected, the health professional's personal library was the source most often used for medical literature. Personal collections ranged from a couple of shelves of current texts to rooms lined with books of 20-30 years vintage, to collections of reprints.

Unsolicited medical literature (material which the health professionals did not request or pay for by subscription or membership) was the second most common source in obtaining medical literature. In crossmatching 'rural' health professionals used this source more

than 'urban' health professionals($P=0.275$) and those in 'solo' practice used this source more than those in 'institutional' practice($P=0.0011$). When crossmatched with the size of the primary hospital, the use of unsolicited medical literature decreased as the size of the hospital increased($P=0.002$). Health professionals with a professional age of 31-40 used this source more than those with less experience($P=0.0075$) and general and family practitioners used this source more than those in other specialties($P=0.0075$). Pathologists, roentgenologists, and anesthesiologists responded much more to 'never'.

The mean response for hospital libraries as the source of medical literature was 1.0 or 'seldom' and in crossmatching by types of practice, health professionals in 'solo' practice used this source less than those in 'group' or insitutuional' practice($P=0.0093$). The health professionals who were more likely to be around a medical school library (those in 'institutional' practice and those with '0 to 10' years since graduation from medical school) also responded less than the average.

Those individuals who stated that they used a medical school library generally meant the Lister Hill Library, which serves the UAB Medical Center that employees 13% of those interviewed and several affiliated institutions located on the UAB campus. It is in the same county as 36% of those interviewed and is available to all health professionals in the state.

Since only three people responded that they used a medical

society library and only 21 responded to the 'other' category, no statistical interpretation can be made. This latter group generally included 1) individuals in state government who used the Public Health Department Library or 2) those in county offices of the Public Health Department who used local collections and and reprints from the Public Health Department.

Of the people interviewed 333 or 85% stated that the hospital with which they were primarily associated with had a library. Figure 14 shows the distribution of the amount of use of the hospital library and figure 15 shows the various purposes for using the library. Only people who used the library were asked to respond to this latter question but they could respond to as many choices as were relevant.

When the use of the library was crossmatched with the type of health care practice, those in 'solo' practice responded greater than the average to "less than once a month" and people in 'institutional' settings responded "once a week or more frequently" ($P=0.0029$).

In quizzing those who do not use the library as to what improvements in the library would cause them to use it, three responses were cited most often: 1) relevant material available; 2) more material available; and 3) current material available. Lesser responses were 1) personnel available to help find relevant material, 2) more convenient hospital location, 3) more convenient library location, and 4) more convenient library hours.

Each health professional was asked to determine the approximate

number of hours per month he(she) uses various sources of medical information (Figure 16). The mean* indicates the use of a particular source excluding those who do not use the source. The percent represents the part of the whole which use the source.

With a mean of 5.5, the typical health professional spends approximately 5-10 hours each month using medical journals, the most popular source of information. In crossmatching it was found that 'urban' health professionals used journals more than 'rural' or 'semi-urban' ones ($P=0.0019$).

Books are the second most popular source of information and the typical responder spent less than two hours per month with this source. Health professionals with less than ten years of experience (mean=1.8) used books more than other age groups ($P=0.0058$).

From the large increase of the mean* over the mean, those who did use audio-tapes used it consistently and were generally avid users. Although health professionals in 'urban' areas live significantly further from their primary hospital, the survey showed that there is no significant change in their use of audio-tapes over other health professionals. Surgeons responded more than the average to 'between 20 and 30 hours per month' and 'more than 30 hours per month' thus indicating their use of this source was more than other health professionals ($P=0.0246$).

Very few individuals responded that they used television as a medical information source. Although the UAB Medical Center uses

microwaves to broadcast their Grand Gounds to hospitals in the Birmingham metropolitan area and satellites to transmit to other Alabama cities, this program was in an infant stage when the survey was conducted and few people were aware that it was available. 70% did not use motion pictures to help with their health information needs (mean=0.6).

Figure 17 represents the responses to the question regarding the average number of hours per year that the health professional spends at lectures, panels, symposiums, and continuing education courses sponsored by various organizations.

County medical societies and local speciality and similar groups were included under the local professional organizations and the group as a whole had a mean of 1.7, indicating that the typical response was between 5 and 10 hours per year. For those attending state professional meetings, the mean indicates that the typical health professional spends between 10 and 15 hours per year.

Although national professional meetings were the most common response, 36% responded 'no time spent' and the mean increased to 5.4 when this group was excluded. In crossmatching health professionals in 'solo' practice spent less time at professional meetings than those in 'group' and 'institutional' practice ($P=0.0109$) and those with less than 10 years professional age spent less time than older health professionals ($P=0.0007$). The group with less than 10 years professional

age includes: 1) residents who are not free to attend numerous meetings, 2) physicians who are setting up practice, and 3) physicians with little seniority in 'group' or 'institutional' practice. The mean for general and family practitioners(3.3) was lower than the average for the other groups(4.3) ($P=0.0003$).

The attendance at courses sponsored by medical schools was the second most popular and various crossmatching revealed that the use of them was uniform between the different groups.

Figure 18 shows the health professional's use of various library services.

Since Abridged Index Medicus is printed for the small hospital libraries and for individual use, one would expect that health professionals from rural and semi-urban areas would have this source more available than urban ones. It was found that 96% of the 'rural and 'semi-urban' health professionals did not have Abridged Index Medicus available by personal subscription or at the local hospital ($P=0.0001$). When responses were crossmatched with the size of the primary hospital, 94% of those associated with hospitals with 499 or less beds did not have Abridged Index Medicus available to them ($P=0.0001$). 70% of those interviewed associated with hospitals of 500 or more beds had Abridged Index Medicus available to them.

The mean responses for the use of Index Medicus was 0.6 but if one considers only those who have Index Medicus available, the mean* is 1.2, indicating that the average use was less frequent than

once a month. Six percent stated that they were not even familiar with Index Medicus. 83% of those in rural counties do not have Index Medicus available to them while 37% of health professionals in semi-urban regions stated that Index Medicus was not available.

When asked about their use of Excerpta Medica-CA 'urban' health professionals were more aware and used this source more than other health professionals($P=0.0001$).

To assist health professionals throughout the state, the UAB Medical Center maintains the MIST(Medical Information Service via Telephone) lines. When informal discussion with a member of the UAB faculty is beneficial, an Alabama health professional may use the toll free MIST number. Although quite popular throughout the nation, this service was first implemented at UAB and is consequently well developed. As can be seen from Figure 18, the mean response is 0.9, indicating that it was the most popular service in this group. The main purpose of MIST is to serve the health professional in the rural and semi-urban areas who generally do not have specialists for direct interaction. This goal may have been reached since 'rural' and 'semi-urban' health professional responded more than 'urban' health professionals to using this service($P=0.0001$). In cross-matching by the size of the primary institution, health professionals associated with smaller institutions were more likely to use the MIST line although it was encouraging to know that health professionals associated with all sizes of health institutions were familiar with the system($P=0.0388$). When the use of the MIST line was crossmatched with

to maintain a current collection in the past. 'Semi-urban' and 'rural' health professionals responded more than the average to "would use" while 'urban' health professionals responded more to "would not use" ($P=0.0389$).

Summary

The "Questionnaire to Determine the Health Professional's Cancer Information Needs", was administered by the Lister Hill Library to determine the information habits and needs of Alabama health professionals. The personal interviews with 402 health professionals showed that medical literature was the most often used source of medical information. The typical health professional spent 5-10 hours per month with medical journals and an additional two hours per month with medical books. The average health professional also spent 1-5 hours per week in conference with other colleagues, the second most popular source. Older health professionals use personal colleagues less than younger ones. Typical health professionals spent 5-10 hours per year at local professional meetings, 5-10 hours per year at state meetings, and 10-15 hours per year at national meetings. They also spent approximately 10-15 hours per year at CE courses sponsored by various medical schools.

For those areas that employed a health professional (generally MD) to develop, schedule, and advertise CE courses, the region's health professionals responded that they spent a great deal more time at CE courses than those areas where the responsibility for

planning was only part-time.

There tended to be a decrease in the use of pharmaceutical representatives by several people but they were still being used extensively, particularly by those in rural, solo practice who are older and in general or family practice.

Unsolicited medical literature was the second most common source in obtaining medical literature(after one's personal library). This source was generally used more by those in rural, solo practice who were older and associated with smaller institutions.

The health professionals who used audio-tapes used them extensively but the use of audio-tapes was not in proportion to the distance between the health professional office and home as was originally suspected.

With regard to information dissemination sources, 83% of those interviewed from 'rural' counties did not have Index Medicus available to them, while 37% of those from 'semi-urban' areas did not have Index Medicus available. Although most knew that interlibrary loans are available, most have not used this mechanism and many of those from rural areas and associated with smaller institutions did not know about this mechanism.

Urban health professionals were more likely to be aware of the NLM's (National Library of Medicine) MEDLARS system although the majority of all responders have not used the system.

Of those interviewed 73% stated that the information service that they wanted most was a subject newsletter (i.e. cancer) with short

Dial-Access tapes have been provided by MIST and the Lister Hill Library for a number of years. These include short(5-7 min) recordings on various medical subjects which the health professionals may listen to over the telephone. These have never been uniformly popular but are heavily used immediately after a catalog mail-out. Only 26% stated that they would use this system. Approximately 73% responded that a newsletter would be helpful in keeping health professionals abreast medically. This clinically oriented newsletter would be a collection of short articles on specific subjects and would include bibliographic information tied to a mechanism that the health professional could use to obtain cited material.

The most popular method for keeping health professionals abreast was post-graduate educational programs offered at a nearby medical school (86% positive response). Only 48% would attend these courses offered at a local hospital because of being paged or interrupted. The financing of quality programs at the local areas was also cited as a reason for having the programs at a nearby medical school. This was particularly true of 'rural' counties. Health professionals in 'semi-urban' areas stated that they "would use enthusiastically" educational programs at the local level($P=0.0036$).

Of those responding 39% stated that they would improve the local hospital library to keep health professionals abreast medically. Many of the health professionals who responded negatively stated that 1) this was not financially feasible; or 2) it has been impossible

the health professionals do not know about and do not use the interlibrary loan system($P=0.001$).

It was also apparent that health professionals associated with smaller hospitals (even in urban areas) have a decreased use of interlibrary loans($P=0.0001$). This is also the individual who probably does not have adequate hospital library service. As would be expected, health professionals in 'institutional' practice had a greater than average chance of using interlibrary loans($P=0.0002$). In crossmatching responses by speciality, fewer physicians in general or family practice knew about and used this service than those in the other specialities($P=0.0002$).

The use of Current Contents was quite low and was generally used by health professionals in the UAB region.

From Figure 18, the mean response for MEDLINE was 0.3. 'Urban' health professionals showed greater use than 'rural' and 'semi-urban' ones ($P=0.0001$). In crossmatching between hospital size and use of MEDLINE, there was a general increase in the use of MEDLINE as the size of the primary hospital increased($P=0.0001$). It was also determined that as the number of journals the health professional subscribed to increased, the use and knowledge of this service increased ($P=0.0289$).

Figure 19 shows the results of asking the participants the question "If you were responsible for planning an effective method for keeping health professionals abreast medically, which of the following would you choose"?

the health professional patient load, those responsible for more patients used the MIST line more than those responsible for fewer patients($P=0.0003$). The use of the MIST service increased with professional age($P=0.0001$).

A Dial-Access Tape program is offered through the MIST program and is housed in the Lister Hill Library. There was more of a tendency for a 'rural' health professional to use this service than 'semi-urban' or 'urban' ones($P=0.0030$).

In cooperation with the MIST program, health professionals from throughout Alabama may call the Lister Hill Library to request journal articles. This service has never been publicized and is not available to Jefferson County health professionals since they are in the same county as the Library. When crossmatched those in 'group' practice used this source more than those in 'solo' or 'institutional' practice($P=0.0001$). Approximately 300 loans were made each month by this mechanism to health professionals not served by other medical libraries. Those physicians with less than ten years professional age used this source less than those with more than 10 years professional age($P=0.0039$).

When asked about their knowledge and use of the interlibrary loan system which is operated by the Lister Hill Library in cooperation with regional and national groups, the mean was 0.3 indicating that the typical health professional had not used the service. As one progresses to the more rural areas in the state, the greater the chances are that

clinically oriented articles that listed relevant original articles. This newsletter should be tied with a mechanism for them to be able rapidly obtain the cited material.

Information from this survey was used to develop a Comprehensive Integrated Cancer Information System (CICIS) that was implemented throughout the state of Alabama.

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2. Kough W, Timour J: Are hospital libraries meeting physicians' information needs? Spec Libr 64: 222-7, May 73.

Figure 1

Distribution of Alabama Health Professionals
by Geographic Regions

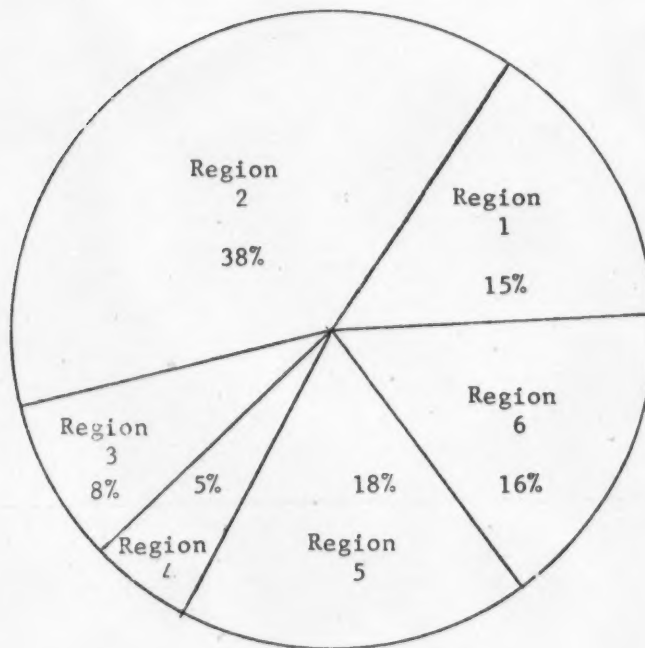


Figure 2

Distribution of Alabama Health Professionals
Interviewed by Geographic Regions

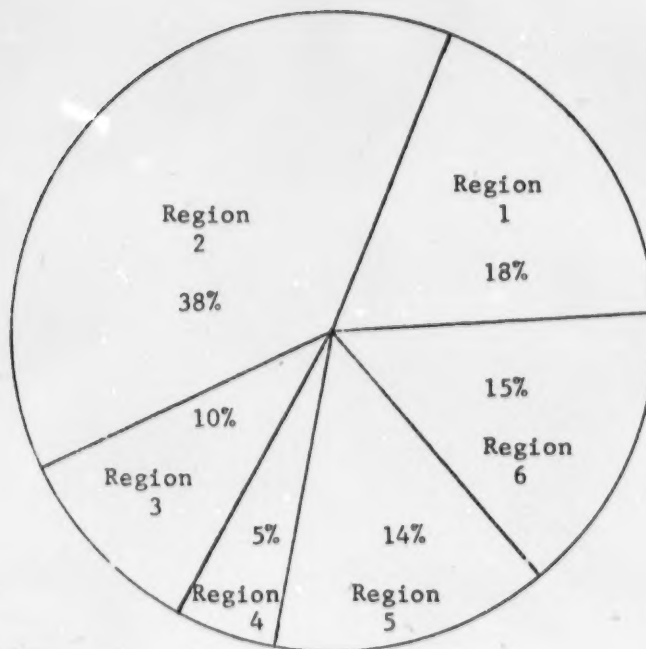


Figure 3

Distribution of Alabama Health Professionals
by Rural, Semi-Urban, and Urban

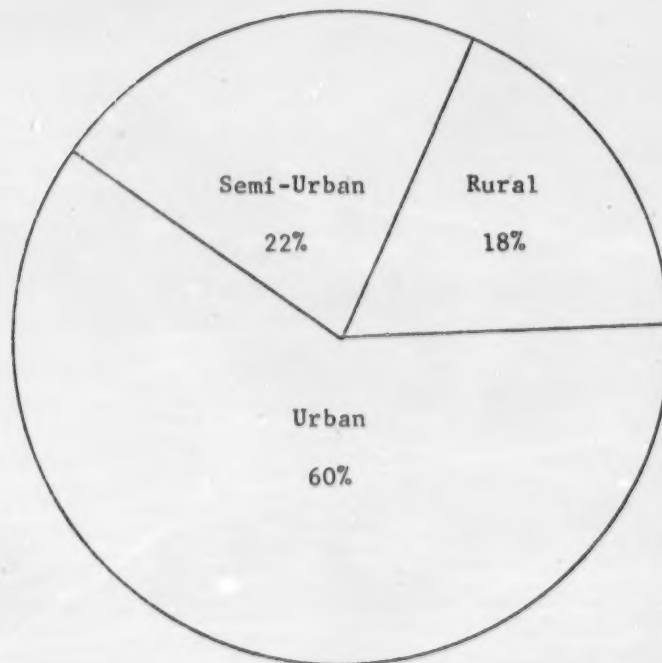


Figure 4

Distribution of Alabama Health Professionals
Interviewed by Rural, Semi-Urban, and Urban

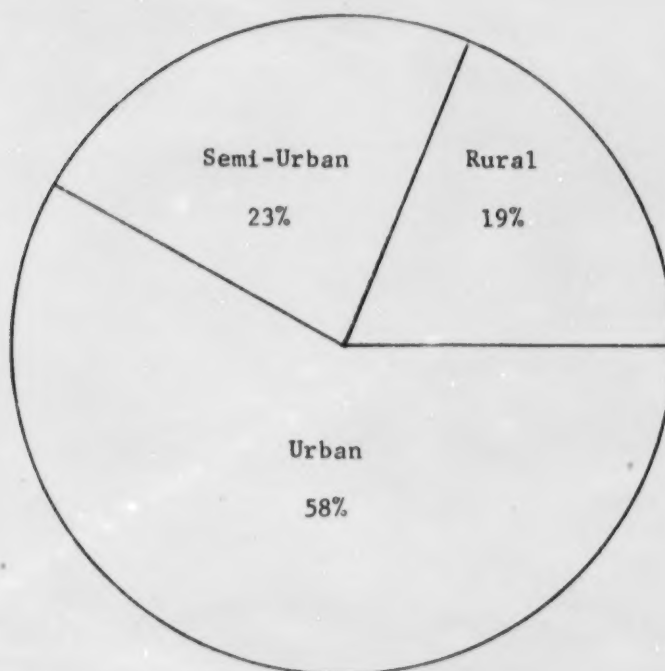


Figure 5

Health Professionals Interviewed

<u>Professional Group</u>	<u>Number of Group in Alabama</u>	<u>Number Interviewed</u>	<u>% of Group Interviewed</u>
Physician	4018	309	7.7%
Dentist	1154	18	1.6%
Optometrist	202	20	10.0%
Nurse Practitioner	95	18	18.9%
Physical Therapist	170	19	11.2%
Occupational Therapist	<u>101</u>	<u>18</u>	17.8%
Total	5740	402	

Figure 6

Omissions

<u>Refused</u>		<u>Rejected</u>	
Retired	25	Unable to locate	84
No reason given	21	Moved out of state	32
Too busy	10	Transferred from military base	16
Illness	9	Deceased	7
Could not use cancer- related service	4	Joined Armed Forces	3
Does not participate in studies	4	Profession did not qualify	<u>2</u>
Changed professions	1	Total	144
Job hunting	<u>1</u>		
Total	75		

Figure 7

Breakdown of Sample by Health Care Practice

	<u>Total</u>	<u>%</u>
Solo	160	40
Group	97	24
Health Care Institutions	129	32
Other	<u>16</u>	4
Total	402	

Figure 8

Breakdown of Physician by Specialty

<u>Group #</u>	<u>Specialty Group</u>	<u>Interviewed</u>
1	General Practice	77
2	Internal Medicine	53
3	Surgery	46
4	Obstetrics, Gynecology	27
5	Pediatrics	25
6	Pathology, Roentgenology, Anesthesiology	35
7	Other	<u>42</u>
	Total	305

Figure 9

Breakdown of Physicians Interviewed by Professional Age

<u>Professional Age</u>	<u>Number</u>	<u>%</u>
0-10	98	32
11-20	67	22
21-30	67	22
31-40	49	16
41-up	<u>24</u>	8
Total	305	

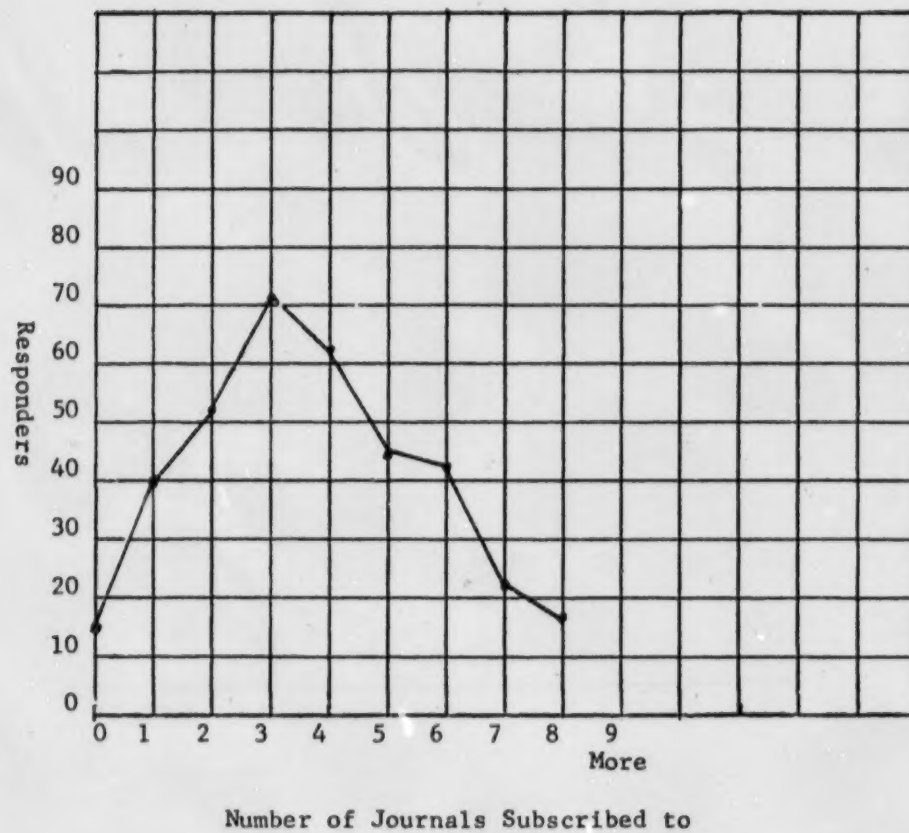
Figure 10

Health Professional's Use of Information Sources

	(0) <u>Never</u>	(1) <u>Seldom</u>	(2) <u>Regularly</u>	(3) <u>Often</u>	<u>Mean</u>
Medical Literature	2	22	157	217	2.5
Professional colleagues	6	86	182	127	2.1
Associational meetings	33	95	162	108	1.9
Continuing education courses	89	180	79	48	1.2
Pharmaceutical representatives	131	168	74	24	1.0
Patients	370	19	0	1	0.0
American Cancer Society	388	6	1	1	0.0
Other	0	4	10	48	Disregard

Figure 11

Health Professional's Journal Subscription



9 journals or more = 37 responders

Figure 12

Time Spent Conferring with Professional Colleagues

	<u>Freq.</u> <u>All</u>	<u>%</u> <u>All</u>	<u>Freq.</u> <u>Phys.</u>	<u>%</u> <u>Phys.</u>	<u>Freq.</u> <u>Other</u>	<u>%</u> <u>Other</u>
Less than 1 hr. per week	47	12%	24	8%	23	25%
Between 1 & 5 hrs. per week	278	69%	219	71%	59	63%
Between 5 & 10 hrs. per week	62	15%	56	18%	6	6%
Between 10 & 20 hrs. per week	12	3%	7	2%	5	5%
Between 20 & 30 hrs. per week	2	.5%	2	1%	0	0

Figure 13

Health Professional's Source of Medical Literature

	<u>(0)</u> <u>Never</u>	<u>(1)</u> <u>Seldom</u>	<u>(2)</u> <u>Regularly</u>	<u>(3)</u> <u>Often</u>	<u>Mean</u>
Personal library	0	0	28	372	2.9
Unsolicited medical literature	25	143	176	55	1.7
Hospital library	162	112	76	45	1.0
Medical school library	177	107	70	45	1.0
Medical society library	382	3	0	0	0.0
Other	1	1	7	12	Disregard

Figure 14

Use of the Local Medical Library

Do not use the library	63	19%
Less than once a month	97	29%
Between once a week and once a month	97	29%
Once a week or more frequently	77	23%

Figure 15

Purpose for Using the Library

Responders

To find current information about a particular topic	218
To read an article that the citation is already known	234
For general medical interest	18
Library Research	71
Other	5

Figure 16

Health Professional's Use of Information Channels

- | | |
|----------------------------------|------------------------------------|
| 0 = Do not use | 5 = Between 4 & 5 hrs. per month |
| 1 = Less than 1 hr. per month | 6 = Between 5 & 10 hrs. per month |
| 2 = Between 1 & 2 hrs. per month | 7 = Between 10 & 20 hrs. per month |
| 3 = Between 2 & 3 hrs. per month | 8 = Between 20 & 30 hrs. per month |
| 4 = Between 3 & 4 hrs. per month | 9 = More than 30 hrs. per month |

	0	1	2	3	4	5	6	7	8	9	Mean	Mean*	%
Journals	4	11	29	32	34	53	101	76	39	20	5.5	5.6	99%
Books	124	96	123	16	8	7	13	4	1	5	1.6	2.3	69%
Audio-tapes	284	25	32	26	7	3	12	8	4	1	0.9	3.2	29%
Motion pictures	280	65	22	12	7	8	8	0	0	0	0.6	2.1	30%
Television	388	6	4	2	1	1	0	0	0	0	0.1	2.1	3%
Radio	401	1	0	0	0	0	0	0	0	0	0	1.0	0
Other	392	3	4	1	1	1	0	0	0	0	Disregard		

Figure 17

Health Professional's Use of Educational Courses

- | | |
|-----------------------------------|------------------------------------|
| 0 = No Time spent | 5 = Between 20 & 25 hrs. per year |
| 1 = Less than 5 hrs. per year | 6 = Between 25 & 50 hrs. per year |
| 2 = Between 5 & 10 hrs. per year | 7 = Between 50 & 75 hrs. per year |
| 3 = Between 10 & 15 hrs. per year | 8 = Between 75 & 100 hrs. per year |
| 4 = Between 15 & 20 hrs. per year | 9 = More than 100 hrs. per year |

	0	1	2	3	4	5	6	7	8	9	Mean	Mean*
Local professional organization	110	93	108	50	12	7	14	3	1	3	1.7	2.3
State professional organization	182	28	56	53	42	19	21	1	0	0	1.7	3.2
National professional organization	146	12	15	19	17	37	103	29	15	9	3.4	5.4
Medical School	130	20	47	40	34	26	66	17	15	6	3.0	4.4
Other	4	1	8	12	14	11	20	3	2	0	Disregard	

Figure 18

Health Professional's Use of Library Services

Response Code	Compacted Code for Finding Means +	
0	0	= Not Available
1	0	= Not familiar with
2	0	= Familiar with but have not used
3	1	= Used less frequently than once a month
4	2	= Used once a month
5	3	= Used more frequently than once a month

	0	1	2	3	4	5	Mean +	Mean* +
Abridged Index Medicus	353	36	9	1	0	2	0	2.3
CANCERLINE	7	390	4	1	0	0	0	1.0
Excerpta-Medica-CA	274	55	62	10	1	0	0	1.1
MIST	0	38	150	119	39	56	0.9	1.7
MIST Dial-Access Tapes	2	95	219	81	5	0	0.2	1.1
Cancer Therapy Abstracts	281	54	62	4	1	0	0	1.2
Carcinogenesis Abstracts	281	54	62	4	1	0	0	1.2
Document Delivery Service (lib to patron)	7	315	40	31	8	1	0.1	1.3
Document Delivery Service (lib to lib)	5	186	99	104	6	2	0.3	1.1
Current Contents	267	82	32	15	0	6	0.1	1.6
Index Medicus	111	23	70	164	21	13	0.6	1.2
MEDLINE	2	231	72	80	11	6	0.3	1.2
SDILINE	5	381	12	4	0	0	0	1.0
SMA Dial Access	14	349	28	9	0	0	0	1.0

+In Calculating mean responses, codes 0, 1, and 2 were compressed to 0 to indicate 'no use', and 3, 4, and 5 were given a code of 1, 2, and 3 respectfully to indicate degree of use.

Figure 19

Health Professional's Choice for Keeping Abreast Medically

	(0) Would Not Use	(1) Would Use	(2) Would Use Enthusias- tically	Mean	Would Use %
Dial-Access Tapes	293	99	6	0.3	26
Newsletter	36	290	74	1.1	91
Postgraduate education program at a nearby medical school	57	326	18	0.9	86
Postgraduate education program at a hospital that you admit patients	188	192	20	0.6	53
Improvements in the local hospital library	227	158	16	0.5	43
Audio-visual materials	116	258	27	0.8	71
Other	1	1	4	Disregard	